ABSTRACT

A discrete cosine transform (DCT) level enhancement to Motion Picture Experts Group (MPEG) video encoding is described that results in a more concise bitstream than MPEG encoding without the enhancement. One degree of freedom provided by the

5   MPEG encoding specifications is whether a frame- or field-based DCT operation will be used. In the field-based DCT operations, luminance sub-blocks are built from even or odd rows of the original image, which correspond to the top and bottom fields in field-based video. This allows the encoder to take advantage of the higher correlation between rows for the same field, especially in field-based video with a high level of motion. In

10   one embodiment, both field- and frame-based DCT operations are performed and the results are quantized. On a macroblock-by-macroblock basis, the option that results in the fewest non-zero coefficients is selected and those coefficients are used for run-time encoding.